

1,146,836



PATENT SPECIFICATION

DRAWINGS ATTACHED

1,146,836

Inventor: FRANK GEORGE FREEMAN

Date of filing Complete Specification: 25 Aug., 1966.

Application Date: 9 Sept., 1965.

No. 38511/65.

Complete Specification Published: 26 March, 1969.

© Crown Copyright 1969.

Index at acceptance:—G1 WE1

Int. Cl.:—G 01 13/14

COMPLETE SPECIFICATION

Torque Measuring Devices

We, JOSEPH LUCAS (INDUSTRIES) LIMITED, of Great King Street, in the City of Birmingham 19, a British Company, do hereby declare the invention for which we pray that a Patent 5 may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to devices for measuring 10 torque between a pair of shafts or other members, one being referred to as a driving member and the other as a driven member.

The object of the invention is to provide 15 a torque measuring device in a particularly simple though effective form.

In accordance with the present invention, a 20 torque measuring device comprises a first part connectible to a driving or driven member and mounted for relative angular movement to a co-axial second part connectible to a driven or driving member and a spirally coiled spring connected between the two parts and disposed within a space defined between the two parts, the spring being arranged to oppose relative 25 angular movement between the parts, and the parts carrying respective means for indicating relative angular movement between them.

The invention will now be described by way 30 of example with reference to the accompanying drawings in which:

Figure 1 is a cross-sectional view of one form of device constructed in accordance with this invention, and

Figure 2 is a side elevation view.

In the example shown in the drawings, there 35 is provided a torque measuring device comprising an outer part 10, mounted on bearings 11, 12 upon an inner concentric part 13, the latter being formed by a sleeve 13a, and a ring 13b secured to the sleeve by a spring wire clip 14. Both parts are internally splined at 15 and 16 respectively.

In a space defined between the parts 10 and 40 13 there is provided a spirally coiled spring 17 anchored at its ends respectively to the

parts 10 and 13 by means of the pins 18 and 19 respectively.

On the exterior surface of the part 10 are 45 graduations 20 and on an annular flange on the part 13 is a mark 21 arranged adjacent to the graduations 20.

Though not shown in the example, the outer portion of the part 10 carrying the graduation 20 may be rotatable with respect to the remainder of the part 10 so that the mark 21 can be aligned with the zero indication when the device is at rest.

In use a driving member is connected to one of the parts 10 or 13 whilst a driven member is connected to the other, the connections being made by means of the splines 15 and 16 respectively. When the device is rotated with the driving and driven members the torque on the driving member with respect to the driven member will be employed in stressing the spring 17 which will permit some angular movement between the parts 10 and 13, this angular movement being recorded by the movement of the mark 21 with respect to the indications 20. Since the whole of the device will be rotating, the position of the mark 21 with respect to the indications 20 can be determined by using a stroboscope.

WHAT WE CLAIM IS:—

1. A torque measuring device comprising a first part connectible to a driving or driven member and mounted for relative angular movement to a co-axial second part connectible to a driven or driving member and a spirally coiled spring connected between the two parts and disposed within a space defined between the two parts, the spring being arranged to oppose relative angular movement between the parts, and the parts carrying respective means for indicating relative angular movement between them.

2. A torque measuring device substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

50

55

60

65

70

75

80

85

MARKS & CLERK,
Chartered Patent Agents,
Agents for the Applicants.

Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1969.
Published by the Patent Office, 25 Southampton Buildings, London, W.C.2, from which
copies may be obtained.

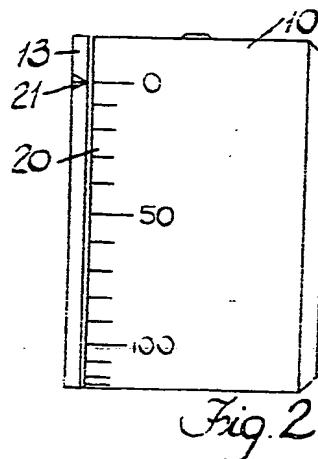
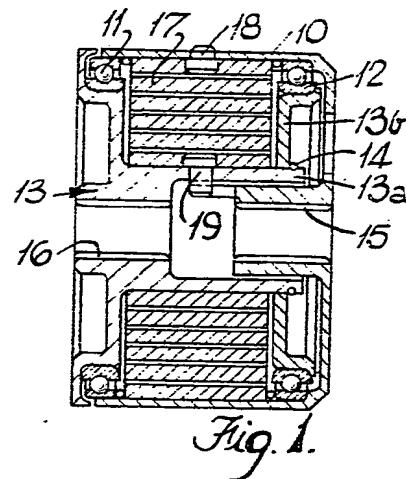
BEST AVAILABLE COPY

1146836

1 SHEET

COMPLETE SPECIFICATION

*This drawing is a reproduction of
the Original on a reduced scale*



THIS PAGE BLANK (USPTO)